tous les soucis de la vie, n'imaginaient pas dans leurs rêves les plus ambitieux qu'ils auraient un jour à eux l'un des plus beaux palais du monde, avec une galerie de tableaux, une bibliothèque créée d'une seule venue par un grand écrivain doublé d'un érudit consommé, des bois, des eaux, et tout un monde de beaux souvenirs.

Peut-être est-il bon de rappeler ici, pour expliquer à la fois notre richesse et notre pauvreté, que tous les dons faits à l'Institut sont faits à la science ou aux pauvres. Les membres de l'Institut n'en profitent jamais. Une nouvelle donation n'est pour eux qu'un surcroît de travail. L'empereur Napoléon III voulut un jour élever à 5000 francs l'indemnité annuelle de 1500 francs, ce qui faisait une quantité froment fort respectable. L'Institut, consulté, exprima sa reconnaissance, et refusa.

On a dit quelquefois que tous les efforts de la Révolution pour transformer les académies n'avaient été qu'une illusion. Le 8 août 1793, on les supprime ; le 25 octobre 1795, on les remplace par l'Institut. On s'aperçoit sur-le-champ que cet Institut, à force d'être nouveau, n'est pas viable. Dès 1803 on commence à le réformer ; les réformes se multiplient d'année en année, et à quoi aboutissent-elles ? à supprimer la plupart des innovations à refaire les anciennes académies et même, en 1816, à leur rendre leur nom.

Ceux qui parlent ainsi ne voient pas qu'il reste à la Révolution la gloire d'avoir établi un lien étroit entre les académies, d'avoir compris la solidarité des lettres, des sciences et des arts, d'avoir mis les académies en communication plus intime avec le public et de leur avoir donné de nouveaux et sérieux moyens d'influence.

Des anciennes compagnies, des remaniements opérés sur les nouvelles est résulté l'Institut actuel, où la protection de l'État n'exclut pas la liberté des membres, où chacun répond seul de sa doctrine, où la solidarité d'honneur qui unit tous les membres rend impossibles les excentricités, où tous les travaux tendent à la manifestation de la vérité et aux triomphes de l'art, où tous les membres rassemblés sans être confondus se prêtent une mutuelle assistance sans jamais tomber dans la confusion ; un corps enfin qui réunit dans une juste proportion l'autorité et la liberté, et qui mérite d'être proposé comme modèle à toutes les nations civilisées.

J'ose ajouter, Messieurs, que votre présence ici, celle du chef respecté de l'État, et l'éclat qui en résulte vont donner à l'Institut national de France une consécration nouvelle.

Le monde assiste depuis vingt-cinq ans à un singulier spectacle. D'une part les gouvernements multiplient avec une sorte de rage les préparatifs de guerre. Ils construisent des forteresses, ils coulent des canons, ils emplissent les arsenaux de projectiles ; ils imposent le service militaire dans l'armée active à tous les jeunes gens sans exception, au point de vider les écoles, de désorganiser les services publics et particuliers, d'ôter à l'agriculture et à l'industrie les bras dont elles ont besoin. Ils retiennent les citoyens dans les liens du service militaire jusqu'à quarante-cinq ans. Il semble que la bataille doive se livrer demain.

En même temps tous les philosophes, tous les publicistes, les hommes d'Etat, les souverains eux-mêmes protestent à grands cris de leur horreur pour la guerre. Ils veulent la paix, il la leur faut pour rendre au travail la sécurité, à l'intelligence ses droits et à l'année son printemps. On fonde de toutes parts des ligues pour la paix, on assemble des congrès pour protester contre la paix armée, plus ruineuse et plus meurtrière que la guerre.

Hélas ! ces congrès n'apportent que des vœux. C'est beaucoup et ce n'est rien. Ils apportent des vœux, je n'ose pas dire qu'ils apportent des espérances.

Ce qu'il faut à l'humanité, ce ne sont pas des paroles, ce ne sont pas des soupirs, ce sont des actes. Ce qui fera renaître la fraternité entre les hommes, ce sont grands travaux faits en commun, de grand services rendus à l'humanité.

Le voilà devant vos yeux, le congrès de la paix ! Voilà le congrès où la vérité est aimée pour elle-même, quel que soit le pays où elle éclate, où la poésie est adorée dans toutes les langues, où les grandes découvertes excitent le même enthousiasme, quelle que soit leur origine, et où l'on ne connaît d'autre émulation que celle de bien faire. La patrie de l'éternelle vérité et de l'éternelle beauté est aussi la patrie de la paix.

Associés et correspondants de l'Institut de France, vous n'emporterez pas seulement d'ici le souvenir des chaleureuses sympathies qui vous ont accueillis. Nous emporterons tous, de cette réunion fraternelle, un redoublement d'amour pour la paix, pour les sciences qui la fécondent et pour les arts qui l'embellissent ; et nous travaillerons, chacun dans notre coin préféré de l'atelier universel, à la prospérité de la maison, c'est-à-dire au bonheur de l'humanité.

"BARISÀL GUNS" AND "MIST POUFFERS.

In the delta of the Ganges, dull sounds, more or less resembling distant artillery, are often heard. These are called "Barisàl guns"; but I do not know the meaning of the term.[1] The object of this note is to draw the attention of the readers of NATURE to this mysterious phenomenon, and to the similar "mist pouffers" of the Belgian coast.

My attention was for the first time drawn to the subject some days ago by a letter from M. van der Broeck, Conservator of the Museum of Natural History of Belgium. He writes[2] of certain "curious aerial or subterranean detonations, which are pretty commonly heard, at least, in Belgium and in the north of France, and which are doubtless a general phenomenon, although little known, because most people wrongly imagine it to be the sound of distant artillery.

"I have constantly noticed these sounds in the plain of Limburg since 1880, and my colleague of the Geological Survey, M. Rutot, has heard them very frequently along the Belgian coast, where our sailors call them 'mist pouffers' or fog dissipators.

"The keeper of the lighthouse at Ostend has heard these noises for several years past; they are known near Boulogne, and the late M. Houzeau spoke of them to my friend M. Lancaster. More than ten of my personal acquaintances have observed the fact.

"The detonations are dull and distant, and are repeated a dozen times or more at irregular intervals. They are usually heard in the day-time when the sky is clear, and especially towards evening after a very hot day. The noise does not at all resemble artillery, blasting in mines, or the growling of distant thunder."

M. van der Broeck, after referring to the "Barisàl guns," says that he was disposed to regard the noises as due to some peculiar kind of discharge of atmospheric electricity. "But my colleague M. Rutot believes the origin to be internal to the earth. He compares the noise to the shock which the internal fluid mass might give to the earth's crust."

Mr. Clement Reed has informed M. van der Broeck that he believes similar noises are heard on Dartmoor, and in some parts of Scotland. I was not previously aware of anything of the kind in these islands.

Before any systematic observations are undertaken, it will be useful to form some general idea of the frequency of these sounds and of their geographical distribution.

Will any of the numerous readers of NATURE in various parts of the world give us an account of their experiences in this matter?

G. H. DARWIN.

NOTES.

THE Municipal Council of Paris have decided to erect a statue to Sir Isaac Newton. We cannot imagine the London County Council paying a similar graceful tribute to the greatness of one of France's renowned investigators, say Laplace or Lavoisier, but we dare to suggest that the action of the Paris Municipality ought to be reciprocated.

MUNIFICENT gifts to science and education continue to be reported from America. *Science* states that the Spring Garden Institute of Philadelphia has received £20,000 from the heirs of Samuel Jeanes, who supported the Institute with great generosity during his lifetime; Earlham College at Richmond, U.S., has received £5000 from Mr. M. H. White and Mr. F. T. White, in memory of their father; a new laboratory, built at a cost of £8000, is almost completed for the departments of bacteriology, histology, and pharmacy in the Medical College of the University of Minnesota; and by the will of Colonel W. L. Chase, £1000 is bequeathed to Harvard College to establish a scholarship in the medical school.

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[1] T. D. La Touche, Brit. Assoc. Rep. 1890, p. 800.

[2] I give a free translation and abridgement of the letter.

DURING the recent Zoological Congress, at one of the meetings of the Section of Comparative Anatomy and Embryology, Prof. A. Kovalewsky bore testimony to the greatness of Huxley in words of which the following is a translation:—"In the list of men of science who expressed their intention to take part in our Congress will be found the name of Thomas Huxley; but death has prevented him from being among us. In the person of Huxley, science has sustained a great loss. We do not know any other investigators of our century who had the talent of foresight to such an extent as Huxley. It was he who, properly speaking, founded modern embryology by demonstrating the homology of the germinal layers of Vertebrates with the ectoderm and endoderm of Cœlenterates. It was he who supported Darwin in the publication of the fundamental work on the origin of species, and it was he who was the fervent propagator of the views therein contained. The two names of Darwin and Huxley have built up the story of the scientific world."

THE following gentlemen have been recommended for election as the Council and officers of the London Mathematical Society at the annual meeting to be held on November 14:—President, Major P. A. Macmahon, F.R.S.; Vice-Presidents, Prof. M. J. M. Hill, F.R.S., M. Jenkins, A. B. Kempe, F.R.S.; Treasurer, Dr. J. Larmor, F.R.S.; Secretaries, R. Tucker and A. E. H. Love, F.R.S. Other members—H. F. Baker, G. H. Bryan, F.R.S., Lieut.-Colonel A. J. Cunningham, Prof. Elliott, F.R.S., Dr. Glaisher, F.R.S., Prof. Greenhill, F.R.S., Dr. Hobson, F.R.S., Prof. W. H. H. Hudson, and F. S. Macaulay. It will be seen that Mr. Jenkins, after thirty years' service, has retired from the office of Secretary, on the score of his delicate state of health. The Society held its first meeting on January 16, 1865, and on the retirement of Mr. H. M. Bompas (November 20, 1865), Mr. Jenkins was requested to act as Secretary until the annual general meeting (January 15, 1866), when he and the late G. C. de Morgan were elected joint Secretaries.

NEXT Sunday will be Museum Sunday—the fourth arranged by the Sunday Society. On that day special sermons or discourses will be given by many leading men in London and the provinces, in support of the Society's object, viz. the opening of museums, art galleries, libraries, and gardens on Sundays. The cause is a righteous one, and deserves every support. A number of special exhibitions will be held in the afternoon of Sunday, and these, together with the museums and other places of interest which will be open, make a fairly extensive list of institutions opened in the manner advocated by the Society. The list clearly indicates that the public opinion of the country is really on the side of a rational observance of the weekly day of rest.

THE death is announced of Prof. H. Hellriegel, in his sixty-fourth year. His investigations in the domain of agricultural science produced many valuable results, and it was his researches that led to the discovery of the fixation of free nitrogen by leguminous plants, through the medium of micro-organisms in the root nodules.

THE death of Dr. Robert Brown deprives science of one of her most popular exponents. Dr. Brown was born at Campster, Caithness, in 1842. He studied in the University of Edinburgh, and afterwards in the Universities of Leyden, Copenhagen. and Rostock, receiving from the latter the degree of Doctor of Philosophy. In 1861 he visited Spitzbergen, Greenland, and the western shores of Baffin's Bay, and made a number of valuable observations. Between 1863–66 he travelled for scientific purposes in many of the least-known parts of America, and some of the Pacific Islands, from the West Indies and Venezuela to Alaska and Behring Sea Coast, as botanist of the British Columbia Expedition and commander of the Vancouver Island Exploring Expedition, during which he introduced various new plants into Europe, and charted all the interior of Vancouver, then unknown. In 1867 he visited Greenland, making, with Mr. E. Whymper, the first attempt by Englishmen to penetrate the inland ice, and formed those theoretical conclusions regarding its nature, afterwards confirmed by Nansen and Peary. Dr. Brown afterwards travelled extensively in the Barbary States of North Africa. Settling down in Scotland he was successively lecturer on geology, botany, and zoology in the Royal High School, Edinburgh, and Heriot Watt College, Edinburgh, the Mechanics' Institution, Glasgow, and elsewhere. He was an honorary or ordinary member of many learned societies in this country, in America, and on the continent. In 1876 he removed to London, in order to devote himself entirely to literary work, and for the greater part of the period, from that time to his death, was on the editorial staff of the *Standard*. He was the author, or part author, of about thirty volumes, and of a large number of scientific memoirs, articles, and reviews.

THE thirty-fourth annual meeting of the Yorkshire Naturalists Union was held yesterday at York Museum, and the presidential address was delivered by Dr. R. Braithwaite, on "The Study of Mosses."

MR. ARCHIBALD DENNY, of Dumbarton, has accepted the presidency of the Institution of Junior Engineers, in succession to Mr. Alexander Siemens, and will deliver his presidential address on Friday evening, November 1, at the Westminster Palace Hotel; Prof. A. B. W. Kennedy, Past-President, in the chair.

THE Epping Forest Free Local Museum, established by the Essex Field Club in Queen Elizabeth's Lodge, Chingford, will be declared open next Saturday afternoon, by Mr. R. C. Halse, Chairman of the Epping Forest Committee of the Corporation of London. Short addresses on the subject of local museums will be given by Mr. A. Smith Woodward, and others.

THE Session 1895–96 of the Royal Geographical Society, for the evening meetings, will commence on November 11, when an account of the progress of the Jackson-Harmsworth Arctic Expedition will be given by Mr. A. Montefiore. On November 25, a paper on the Færoe Islands will be read by Dr. Karl Grossmann; exploration in the Central Alps of Japan will be described by the Rev. Walter Weston on December 9; and movements of the earth's crust, by Prof. John Milne, F.R.S., on January 6. Other papers which may be expected after Christmas are the following: Journey across Tibet, by St. George R. Littledale; exploration in the Alps of New Zealand, by E. A. Fitzgerald; our knowledge of the oceans, by Dr. John Murray; the geography of the English lake district, by J. E. Marr, F.R.S.; the cañons of Southern Italy, by R. S. Günther; British Central Africa, its geography and resources, by Alfred Sharpe. The following subjects, among others, will be submitted for consideration and discussion at the special afternoon meetings:—The construction and uses of globes, by J. Y. Buchanan, F.R.S.; the struggle for life in the North Polar region, by A. Trevor-Battye; an attempt to reconstruct the maps of Herodotus, by J. L. Myres. Under the joint auspices of the Society and the London University Extension, Mr. H. J. Mackinder is giving a course of twenty lectures on the principles of geography, at Gresham College.

THE *Weekly Weather Report* of the 26th inst. shows that the temperature over the British Islands during the week was abnormally low for the time of year, the deficit ranging from 4° in the Channel Islands, and 6° in the east of England and north of Ireland, to 8° in the north-west of England and the south of Ireland. The lowest shade readings were recorded towards the end of the week, and ranged from 18° in the south-west of England to 21° in the south of England and 22° in the Midland counties. The continuous occurrence of frost for several nights in the neighbourhood of London during the current month of October has exceeded any previous record in that month at Greenwich during the last fifty years.

A DESCRIPTION of a luminous cloud, observed at Mojanga, Madagascar, on September 27, by Mr. Stratton C. Knott, H.M. Vice-Consul, has been forwarded to us by Mr. R. H. Scott, F.R.S. The phenomenon was seen at 8.20 p.m. as a narrow streak of what appeared more like mist than cloud. It came out of a cumulus cloud in the south, a few degrees above the horizon, and extended through the tail of Scorpio across two-thirds of the sky, which was quite clear excepting some cumulus on the southern and eastern horizon. The streak travelled at a rapid rate eastwards, but its base seemed to be stationary; as it crossed the moon, it caused a sort of double corona. As the cloud got lower on the eastern horizon, although always maintaining the same length, some cumulus passed under it, partly obscuring it, and a few minutes later the streak was lost altogether in the cumulus on the eastern horizon. At the time of the observations the weather was perfectly calm, but soon after this streak had passed, cumulus commenced to ascend from the eastward, and the sky soon became nearly overcast.

THE polarisation of the light emitted by incandescent bodies has not yet been fully investigated. Arago, indeed, made some experiments on incandescent iron, platinum, and glass, but these were only qualitative, and did not extend to liquids. Mr. R. A. Millikan publishes, in the *Physical Review*, an account of some careful tests of light emitted by glowing solids and liquids with a view to discover the laws of its polarisation. This phenomenon is exhibited strongly by incandescent platinum, silver, and gold, and by molten iron and bronze. A somewhat feebler polarisation is shown by copper, brass, lead, zinc, and solid iron. The most significant result is that polarisation is minimum with rays emitted normally to the surface, and maximum at a grazing emission. This indicates that the vibrations take place in a plane at right angles to the emitting surface. To show the phenomenon at its best, a smooth surface is essential. Glass and porcelain also emit polarised light, but to a lesser amount. Fluorescent bodies do the same, so that evidently a high temperature is not necessary. In the case of uranium glass it is the green reflected light which is polarised, and not the blue incident light diffused from the surface.

THE main facts of Lieut. Peary's work in North Greenland are described by Prof. R. D. Salisbury in *Science* of October 11. Prof. Salisbury was one of the party which relieved Lieut. Peary, the other members being Mr. Émil Diebitsch, Dr. J. E. Walsh, Mr. T. Boutillier, and Prof. L. L. Dyche. During his Arctic residence, Lieut. Peary mapped a considerable stretch of the coast of West Greenland—from Cape Alexander on the north to Cape York on the south—and his results show a number of remarkable differences with earlier charts of the same region. His map locates the positions of nearly one hundred glaciers, where but ten were represented on the published chart. In addition to the map, Mr. Peary kept a series of meteorological records, and made observations of the behaviour of winds about the ice sheet, and in this way has come into possession of facts which are not without significance in connection with the problems of glaciology. He made careful measurements of the rate of motion of one of the most active glaciers of the region, and carried them through a sufficiently long period of time to give them especial value. He took back to the United States two large and choice meteorites from the coast east of Cape York, and these will undoubtedly prove of interest. His studies of the Eskimos of North Greenland will, when published, form an important contribution to ethnology.

So far as concerns the results accomplished by the members of the Peary relief party of this year, Prof. Dyche was successful in getting large numbers of birds and mammals at various points along the coast. He also secured an abundant supply of walruses, reindeer and seals, and a smaller number of narwhals, and saw much of the west coast of Greenland between latitude 64° and 78° 45′, at close enough range to study its geographic features to advantage. Stops were made near the parallels of 67°, 69°, 70°, and at many points between 75° 45′ and 77° 45′. At all these points geographical and geological studies were carried on. The eastern coast of America was also seen for a considerable distance, especially from Ellesmere Land south to 71° 30′, and most of the coast of the island of Disco. Prof. Salisbury, who accompanied the party in order to study glacial geology, observed in detail many glaciers between 75° 45 and 77° 45′ on the Greenland coast, and made some determinations of significance concerning glacier motion. A considerable body of evidence was gathered touching the former extension of the ice cap of Greenland. Determinations were also made at several points concerning recent changes of level of the land.

A RECENT number of the *Pioneer Mail*, published in Allahabad, contains an interesting article on immunity from scorpion and snake venom. Much attention has been directed in India to the experiments, which have lately been so successfully carried out, on immunity to snake-bites artificially induced by the introduction of gradually increasing doses of the venom into the system. The writer of the article in question does not regard this achievement as any really new discovery, being convinced that the traditional immunity claimed to be possessed by the Indian snake-charmers is simply due to the fact that they have frequently been accidentally bitten by cobras and karits, and having survived the first attack experienced no evil effects from the subsequent bites. This he states as the result of his personal acquaintance with many Madari Jogis and Fakirs, some of whom he knew had been bitten as many as five times. It appears, however, that cases of reputed immunity to scorpion stings are also well known, and one of these he had the opportunity of himself carefully testing. Hearing of a Mahomedan Fakir who had established a reputation for himself in this respect, he determined to investigate the case, and banish, if possible, all chance of trickery and deception being practised. He therefore dug up the scorpions himself, and these formidable creatures he describes as being from 5 to 7 inches long, with claws on them like lobsters. These scorpions the Fakir was told to irritate (not by pinching the end of the tail, which is a well-known way of preventing their stinging), but by touching them on the part of the body indicated; the result was that each one of them stung him strongly enough to draw blood, but the man was apparently none the worse. "There could be no doubt," he writes, "as to the perfect genuineness of the exhibition." This incident should encourage M. Calmette to continue his experiments on artificially inducing immunity to the sting of scorpions by means of gradual doses of the scorpion venom. It is to be hoped that the successful investigations which have so far been made on artificially procuring immunity to snake-bites, may obtain the official recognition which they deserve, and that such immunity may not in the future be confined to the selected few or so-called charmed individuals.

In a lecture recently delivered by Dr. W. J. van Bebber, at Lubeck, and printed in the *Annalen der Hydrographie und Maritimen Meteorologie* for September, he discusses the possible means of improving storm-warning signals. As Dr. v. Bebber has charge of the weather service at the Deutsche Seewarte, his views on the subject carry considerable weight. He points out that notwithstanding constant exertions to place weather prediction on a sound and trustworthy basis, the solution of the question remains in a somewhat unsatisfactory condition. He makes the following suggestions for the furtherance of the object in view, most, if not all, of which have already been discussed at various mereorological conferences, and have fallen through on the score of expense or other hitherto insuperable difficulty:—(1) Extension of telegraphic communication westward (Färoe, South Greenland, &c.). This proposal was advocated by the late Captain Hoffmeyer. (2) Acceleration of exchange of telegrams, by the introduction of the "circuit-system." By this means the telegrams in America are received, and warning messages despatched within two hours of the time of taking observations. (3) More frequent information, by means of telemeteorography, or the connection of self-recording instruments with central offices. The practicability of this method has been put to test in the Netherlands, and the subject was recently discussed by the International Meteorological Committee at Upsala. (4) Exchange of telegrams between neighbouring signal stations; this plan has been found to work successfully in Germany and America, and by its means more recent information is obtained by the seafaring community as to the sudden approach of stormy weather. (5) The popularisation of weather knowledge among the public by means of weather charts, and (6) the preparation of an atlas of types of weather. The number of charts required would be at least 500 or 600. This subject has been suggested by Mr. Abercromby and others.

A new method of measuring the resistance of an air-gap during the passage of a spark has been devised by M. Victor Biernacki, and is described in the current number of the *Journal de Physique*. In the case of a Hertzian resonator in unison with an exciter, the forced vibrations and the natural vibrations of the resonator (the presence of which, according to Poincaré and Bjerkness, explain multiple resonance) have the same periodic time, and according to Bjerkness's theory these two vibrations are in oppose phase. In order that these two vibrations may entirely destroy each other, it is necessary that they be equally damped—that is to say, that the resistance of the exciter and resonator should be equal. The author has verified this consequence of the real presence of these two sets of vibrations in the resonator, by steadily increasing the resistance of the resonator, starting with a resistance less than that of the exciter. In this way he has succeeded in entirely destroying the vibrations in the resonator, and according to theory at this moment the resistances of the exciter and resonator must be equal. Since these had the same dimensions, and were made of the same material, but the spark-gap in the exciter was replaced by a liquid resistance R, it follows that the value of R, which corresponds to the completed extinction of all vibrations in the resonator, is equal to the resistance of the spark-gap in the exciter. The resistance R consists of a glass tube filled with a solution of copper sulphate of various strengths. A Geissler tube or a bolometer is employed to indicate the presence of the vibrations in the resonator. As the dilution of the sulphate of copper solution is increased, the vibrations in the resonator decrease in intensity. These die out, and on further dilution reappear. For a spark-gap of 1 cm. the resistance R varied between 300 and 800 C.G.S. units. With a spark-gap 0·4 m.m. long, however, the resistance is found to be between 1200 and 1500 C.G.S. units. This increase of the resistance as the spark diminishes is very curious; but it is important to notice that the decrease in the length of the spark is accompanied by a change in other properties of the spark. When the terminals of the spark-gap are near together it is very difficult to obtain a straight and white spark, the spark generally being slightly violet in colour and ramified in appearance. With a longer spark-gap, however, it is much easier to obtain a spark which is white in colour and non-ramified, and which passes with a sharp noise. It is a spark of this latter character which Hertz found to be best suited to his classical experiments, and the fact established by the author that such a spark really offers less resistance than a short violet spark, affords an explanation of Hertz's observation.

With the title "The People's Stonehenge," a slim little pamphlet, by Mr. J. J. Cole, has been published by Mr. J. Doney, Sutton, Surrey. The pamphlet contains ten reproductions from photographs of the objects at Stonehenge; and these, with the short descriptive text which accompanies them, brings out the points of interest in the most wonderful of our archæological remains.

Astronomers should be grateful to Messrs. W. Wesley and Son for the excellent catalogue of works on astronomy just published as No. 124 of the Natural History and Scientific Book Circular. The classification is very elaborate, the books being arranged under no less than twenty-four headings. In each section the books follow the alphabetical order of authors' names. Both the arrangement of the sections and the divisions adopted are admirable, and reflect great credit upon the compilers. Bibliophiles well know that a bookseller's catalogue is a mine of information, and they will be joined by astronomers in appreciation of the efforts of Messrs. Wesley and Son to produce a full and accurate list of works on celestial science.

The *Proceedings* of the American Philosophical Society for January, 1895, reached us at the beginning of this week. Among other papers contained in it we notice a description (with four plates) of an old "Horologium Achaz," or Dial of Achaz, by Mr. J. F. Sachse; a paper on "The Significance of the Jugal Arch," by Mr. D. D. Slade; a note proving that thin leaves of gold, similar to those exhibited by Mr. J. W. Swan at the Royal Society in June 1894, were produced by Mr. A. E. Outerbridge seventeen years ago (on this matter, see Mr. Outerbridge's claim for priority in Nature, vol. li. p. 608, 1895); a paper by Dr. D. G. Brinton on the "Protohistoric Ethnography of Western Asia," and the "Fourth Contribution to the Marine Fauna of the Miocene Period of the United States," by Prof. E. D. Cope.

Messrs. Macmillan have just issued the first part of the "History of Mankind," by F. Ratzel, in which the learned author states what the task of ethnography is, and describes the situation, aspect, and numbers of the human race, together with a series of preliminary observations on the rise and spread of civilisation, religion, language, &c. Where possible he illustrates his remarks by pictures of genuine "savage" remains, and his theories have usually a good substratum of fact. It is, of course, too early to pass a final opinion on the work; but we believe that it supplies a want among the increasing number of people who need a popular history of the beginnings of the human race, and an intelligible account of the conditions under which our primitive ancestors lived. The part before us is printed in good type on excellent paper, and contains a coloured plate of a Bosjesman family, and a map of North and South America, besides several illustrations scattered throughout the text.

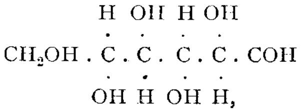
Dr. A. B. Meyer has sent us a memoir (*Abh. u. Ber. des K. Zoolog. u. Anthropol. Ethn. Museums zu Dresden* 1894-95) on a

Brown Chimpanzee. The Chimpanzee described and figured in it is a young female living in the Zoological Gardens at Dresden, remarkable for its reddish brown hair, projecting eyes, and very bright-coloured skin. Dr. Meyer discusses at some length the numerous species, sub-species, and varieties of the Chimpanzee that have been proposed by various authors, and decides that his "Brown Chimpanzee" can be referred to none of them. It may be quite true that no one has previously described such a brown form of the Chimpanzeee, but nearly all mammals, especially the Quadrumana, are subject to lighter variations in colour, and we see no reason why this should not be the case with the Chimpanzee. It would seem, therefore, that Dr. Meyer has done well in not giving his Brown Chimpanzee a new scientific name. It appears that nothing is known of the history of the specimen, nor of its exact locality.

THE third and concluding portion of Kubary's monograph of the ethnography of the Caroline Archipelago is now published under the editorship of Herr J. D. E. Schmeltz, who has, as usual, spared no pains to bring out the memoir in a way which its value demands. The complete work consists of 306 pages and fifty-five plates; many of the latter are coloured. They are executed by Trap, which is a sufficient guarantee of their excellence. It is to the famous but ill-fated Museum Godeffroy that we owe the inception of this investigation. At a later date Kubary was connected with the Kgl. Museum für Völkerkunde in Berlin. The present section, which deals with house- and canoe-construction in the Pelan Islands, maintains the level of conscientious care and minute detail which characterised the two former parts. The structure of the houses and canoes is illustrated to scale by drawings in plan, elevation, and section; and details of fastenings and joinery are given on a larger scale. We have thus all the information necessary to understand structural details, which latter are too often lacking in the descriptions and illustrations of travellers. Some houses are richly decorated with carved and painted ornamentation; but unfortunately Kubary was not impressed with the importance of this branch of ethnography, and so we are left in ignorance as to the significance of the figures and patterns. What a pity it is that the ethnography of our Possessions and Protectorates in various parts of the world is not investigated and published in such a manner as this!

WE have received from Mr. J. Eliot, F.R.S., Meteorological Reporter to the Government of India, parts viii. and ix. of vol. v. of "Indian Meteorological Memoirs," containing the discussion of hourly observations made (1) at Deesa, a military station in the Palanpur State on the Banas River; and (2) at Kurrachee, the Port of Sind. The latter station is about three miles from the sea, and has a most complete exposure. The period embraced is 1875–93, and forms part of the proposed discussion of the observations recorded at twenty-five observatories. For each station the mean observed hourly values of the various elements, and the differences from the mean of the day, have been calculated, and from these the diurnal variations have been resolved into four component harmonic oscillations by the application of Bessel's formula, while the epochs and values of the diurnal maxima and minima have been computed by the method used by Dr. Jelinek, to the second approximation. The investigation of the materials at each station is of itself a most laborious and thorough piece of work, and the complete discussion will be probably unequalled in magnitude. The importance of the whole investigation can scarcely be over-estimated, and when the results are collated they cannot fail to throw much light upon the causes which underlie the periodic variations over this vast area, and their dependence on various physical and local conditions.

XYLOSE, like arabinose, gives two optically active stereoisomeric acids on treatment with hydrocyanic acid and subsequent hydrolysis. Of these, gulonic acid has long been recognised; the second, idonic acid, has recently been isolated, and its derivatives prepared by Émil Fischer and Irving Wetherbee Fay (*Berichte*, 1895, No. 14, p. 1975). The series is remarkable as containing the last missing members of the mannitol group of acids, sugars, and alcohols. The names—idonic acid, idose, iditol, and idosaccharic acid—assigned to these substances have been derived from "idem," and given on account of the symmetrical geometrical formulæ expressing their constitution. From the formula of l-idose,



$$\mathrm{CH_2OH}\,.\,\overset{\mathrm{H}}{\underset{\mathrm{OH}}{\mathrm{C}}}\,.\,\overset{\mathrm{OH}}{\underset{\mathrm{H}}{\mathrm{C}}}\,.\,\overset{\mathrm{H}}{\underset{\mathrm{OH}}{\mathrm{C}}}\,.\,\overset{\mathrm{OH}}{\underset{\mathrm{H}}{\mathrm{C}}}\,.\,\mathrm{COH},$$

it is evident that hydroxyl and hydrogen are similarly related to each of the asymmetrical carbon atoms, and that only the *same* product, racemic acid, and no inactive tartaric acid can be produced by oxidation wherever the molecular chain is broken; in this respect a remarkable contrast to the other hexoses being shown. From the product of the action of hydrocyanic acid on xylose, gulonic acid was separated by repeated crystallisation of the lactones; the syrupy dark liquid resulting on evaporation of the mother liquor was diluted and treated with brucine. The product on evaporation and addition of a large quantity of alcohol gave a crystalline mass of brucine idonate. When purified and recrystallised from methyl alcohol it formed colourless prisms, or long rectangular plates, which melted with decomposition between 185° and 190° (corr.). The acid was prepared from the brucine salt by addition of barium hydrate and subsequent decomposition of the barium salt with sulphuric acid. Ultimately a relatively good yield of idonic acid and its lactone was obtained as a colourless syrup, which dissolved easily in water, and with difficulty in alcohol, and was insoluble in ether. 0·5 gram dissolved in 3·5 grams of water gave a rotation of $-5{\cdot}2°$ in a decimeter-tube. The normal idonates of calcium, barium, cadmium, and lead are amorphous and very easily soluble in water. A characteristic cadmium double salt, $(C_6H_{11}O_7)_2Cd.CdBr_2.H_2O$, crystallises in fine, colourless needles. The corresponding sugar, l-idose, was prepared from the syrupy mixture of idonic acid and its lactone by reduction with 2½ per cent. amalgam after dilution with ten times its volume of ice-cold water. The sugar was isolated in the usual way as a syrup, which could not be completely purified through lack of material. A 10 per cent. sterilised solution did not ferment with yeast. The osazone, prepared as usual, could not be distinguished from gulosazone. The alcohol of this series, l-iditol, was obtained by the further reduction of idonic acid by sodium amalgam, first in acid, and finally in alkaline solution. It was purified by formation of the benzaldehyde compound, recrystallised from acetone in colourless needles of the composition $C_6H_8O_6(CH.C_6H_5)_3$. The purified compound, on treatment with sulphuric acid and alcohol, gave the alcohol as a colourless syrup very easily soluble in water. The idosaccharic acid was formed from idonic acid by treatment with nitric acid, and yielded crystalline calcium and copper salts.

THE additions to the Zoological Society's Gardens during the past week include a Brown Capuchin (*Cebus fatuellus*) from Guiana, presented by Sir Egbert Sebright, Bart.; a King Parrakeet (*Aprosmictus scapulatus*) from Australia, presented by Mr. George Cawson; two White Storks (*Ciconia alba*), European, presented by Sir Charles Payne, Bart.; an Ortalan Bunting (*Emberiza hortulana*), European, presented by Mr. H.

C. Martin; two Hybrid Widgeons (between *Mareca penelope* and *Anas boschas*), bred in England, presented by Mr. Wellesley Taylor; a Cape Viper (*Causus rhombeatus*), two Rufescent Snakes (*Leptodira rufescens*) from South Africa, presented by Mr. J. E. Matcham; a Great Kangaroo (*Macropus giganteus*) from Australia, deposited; two Hunter's Spiny Mice (*Acomys hunteri*), born in the Gardens.

OUR ASTRONOMICAL COLUMN.

RUTHERFURD'S STELLAR PHOTOGRAPHS.—The pioneer work of the late Dr. Rutherfurd in photographic star charting is gradually assuming a form which gives the results a high scientific value. In 1890, Dr. Rutherfurd presented his original negatives, many of them taken more than twenty years ago, to the Columbia College Observatory, New York, together with some thirty volumes of measures of certain star photographs, and Prof. J. K. Rees was authorised to arrange for the discussion of the photographs. After Dr. Rutherfurd's death in 1892, his son, Rutherfurd Stuyvesant, generously provided funds for continuing the reduction and publication of the measures. The results obtained for the stars of the Pleiades group, and for the stars about β Cygni have already been published, as well as an investigation of the parallaxes of μ and θ Cassiopeiæ. To these are now added two papers giving full details of an investigation of the parallax of η Cassiopeiæ, and of the reduction of positions of sixty-two stars in the neighbourhood (*Ann. New York Acad. Sci.*, vol. viii. 301, 381). Using three pairs of comparison stars, the parallax deduced for η Cassiopeiæ is 0″·443 ± 0″·043; or, taking six pairs, 0″·465 ± 0″·044 (see NATURE, vol. lii. p. 61). In view of the difficulty of getting comparison stars suitably situated either with respect to position angle, or distance, it was considered desirable to take a larger number than usual, and hence six pairs were reduced, being all that were sufficiently impressed on the plates in both seasons of the year. Only the three pairs which lead to the first-named value, however, are so situated with reference to the parallactic ellipse as to give good coefficients for the parallax.

RADIAL VELOCITIES OF SATURN.—The recent spectroscopic investigations of the velocities in the Saturnian system furnish an admirable illustration of the accuracy at present attainable in this department of astronomical research. Prof. Keeler, M. Deslandres, Prof. Campbell, and Dr. Belopolsky have each in turn directed their attention to the planet, and the following table brings together the different results obtained, and compares them with the computed velocities:—

	Equatorial velocity of planet.	Excess of velocity for inner edge of ring.
Keeler ...	10·3 km. per sec. ...	3·6 km. per sec.
Deslandres ...	9·4 ,, ...	4·7 ,,
Campbell ...	9·77 ,, ...	3·13 ,,
Belopolsky ...	9·4 ,, ...	5·5 ,,
Computed ...	10·3 ,, ...	3·9 ,,

It thus appears that in the hands of competent observers, the photographic methods now employed for the determination of velocities along the line of sight may be relied upon to give values which are correct to within one kilometre per second; while for results depending upon the measurement of more than one velocity, a little greater latitude must be allowed.

In reply to the objection of M. Deslandres and Prof. Seeliger, that the spectroscopic results do not strictly prove the meteoritic constitution of the ring, Prof. Keeler has pointed out that any other explanation which is consistent with them can only be regarded as artificial, or inherently improbable (*Ast. Nach.* 3313). If the ring were composed of concentric solid rings, a line in the spectrum would be made up of short straight lines, like an end view of a flight of stairs. Prof. Keeler does not consider his own photographs capable of showing more than ten such subdivisions, for if the number were greater than this, the step-like structure of the lines would be destroyed by unavoidable errors in guiding; but up to a certain point the effect would still be apparent in the widening of the lines. He finds, however, that the definition of the lines in the spectrum of the ring is less affected by guiding errors than that of the lines of the planet, as might be expected if the lines were smooth curves such as would be produced in the case of a meteoritic ring.

THE CAPE OBSERVATORY.—Dr. Gill's report of the work done at the Cape Observatory during 1894 has been distributed. It opens by pointing out that the chief desideratum in astronomy during the past decade has been an adequate provision for the study of astrophysics in the southern hemisphere. As the readers of NATURE are aware, Mr. Frank McClean, F.R.S., has given to the Cape Observatory a splendid equipment for such work, so the need has been met, and a harvest of results may be looked for as soon as the instrument is erected. With reference to this generous gift, the report says that the telescope will have a photographic object-glass of 24 inches aperture and 22½ feet focal length, and be provided with an objective prism of the same aperture having a refracting angle of 7½°. Mounted parallel to this there will be a visual telescope of 18 inches aperture and of the same focal length as the photographic telescope. The equatorial mounting will have complete circumpolar motion for within 30° of the zenith; and will be sufficiently elevated to allow of a slit spectroscope suitable for determining motion in the line of sight. Such a spectroscope will also be provided by Mr. McClean, together with an observatory of light construction. The instrument has been for some time under construction by Sir Howard Grubb, and will probably be completed before the end of 1896.

Among the work done with the astro-photographic telescope, we notice that, after rejecting all plates of insufficient exposure, or which are otherwise faulty, only 70 of the plates for the Catalogue, out of 1632 areas assigned to the Cape, remain to be done. Of the chart plates, 263 have been passed as satisfactory.

Measures of the diameters of the photographic discs of a variable star in Vela, together with those of nine comparison stars, prove the former to be a variable of the Algol type, its period being about 5d. 22h. 24m. 4s. A complete discussion of the light curve and period will shortly be undertaken.

The researches on the solar parallax have been carried forward, three sections of the work, on the observations of the minor planets Victoria and Sappho, having been passed through the press. The manuscript of the definitive discussion of the observations of Victoria has been sent to the printers; while the computations of the solar parallax from the observations of Sappho and Dr. Elkin's reductions of the observations of Iris are completed.

THE INSTITUTION OF MECHANICAL ENGINEERS.

AN ordinary general meeting of the Institution of Mechanical Engineers was held on the evenings of Wednesday and Thursday, October 23 and 24, at the Royal United Service Institution, Whitehall, the Council having lent their new theatre for the purpose. The building of the Institution of Civil Engineers, where the Mechanical Engineers have held their London meetings for years, is now in process of rebuilding. It is to be hoped, however, that the Institution of Mechanical Engineers will, before long, have their own premises.

There were three papers down for reading on the first day of the meeting:—

"The Electric Lighting of Edinburgh," by Henry J. Burstall.

"Report on the Lille Experiments upon the Efficiency of Ropes and Belts for the Transmission of Power," translated by Prof. David S. Capper.

"Observations on the Lille Experiments upon the Efficiency of Ropes and Belts for the Transmission of Power," by Prof. David S. Capper.

The chair was taken on each evening at 7.30, by Prof. Alexander B. W. Kennedy, F.R.S. On the first evening Mr. Burstall's paper was read and discussed.

The electric lighting of Edinburgh is in the hands of the Corporation. It was decided upon in 1893, when the work of designing and superintending the scheme was entrusted to Prof. Kennedy, the President of the Institution. From an electrical point of view the city consists of two districts. In one the houses are close together, and the demand for light may be expected to be fairly concentrated; in the other it will be more scattered. Having regard to the different districts to be served, and taking into account all the local circumstances, it was decided, after comparison of the various systems of supply and distribution which could be used, to adopt a low tension three-wire system